

High Resolution Thermometers for Ground and Space Utilization

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The precise measurement of temperature is of vital importance for studying properties of matter. High resolution thermometers, used in studies of liquid helium both in ground laboratories and on the space shuttle, promise enhanced temperature measurement capability for a wide range of applications. Recently, a GdCl_3 thermometer built by JPL, demonstrated a greater than 10^{-10} K sensitivity over a 1 K temperature range. The sensitivity of this thermometer should still be greater than 10^{-8} K over a 5 K temperature range. In addition, an aluminum construction thermometer has been developed for space applications, where cosmic rays degraded previous thermometer performance by a factor of 2.5.